

CLAIMS

1. A tamper detection system for a body worn transmitter attached to a subject's body comprising:

a portable monitoring receiver in proximity to the body worn transmitter continuously receiving signals from the body worn transmitter and a global positioning satellite;

the body worn transmitter having an antenna imbedded in a strap for communicating with the portable monitoring receiver, the antenna inductively coupled to the body of the subject and means for electrically coupling the antenna to the transmitter;

the body worn transmitter having programmed therein a coded identification signal, a data encryption for the coded identification signal, a real time clock and means to detect tampering with the body worn transmitter; and

the body worn transmitter additionally containing an electrolyte immersion sensor sending a tamper inhibit signal via the antenna to the portable monitoring receiver and then to a base station.

2. The tamper detection system according to claim 1 wherein the body worn transmitter emits a battery level signal.

3. A tamper detection system according to claim 1 wherein the body worn transmitter emits a real time clock data signal.

4. A tamper detection system according to claim 1 wherein the antenna has a conductive corrosion resistant metal foil core and a resistive coating to prevent direct electrical contact with the

subject's body.

5. A tamper detection system according to claim 1 wherein the means for electrically coupling the antenna to the transmitter is a strap clamp.

6. A tamper detection system according to claim 1 wherein the means to detect tampering with the transmitter ~~are~~ <sup>is</sup> an antenna reflected power sensor and level detector, an antenna voltage standing wave ratio sensor and change detector and a transmitter cover pressure sensitive switch.

7. A tamper detection system according to claim 6 wherein the detection of a tamper is noted by the base station and the body worn transmitter is reset by a signal from the base station.

8. A tamper detection system according to claim 1 having a data encryption system located between the body worn transmitter and the portable monitoring receiver, the encryption system using the real-time clock as a public data encryption key.

9. A tamper detection device in a body worn transmitter attached to a subject's body and adapted to continuously send electrical signals to a nearby portable monitoring receiver, the body worn transmitter comprising:

an antenna imbedded in a strap for communicating with the portable monitoring receiver, the antenna inductively coupled to the body of the subject and a means for electrically coupling the antenna to the transmitter;

the body worn transmitter having programmed therein a coded identification signal, a data encryption for the coded

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identification signal, a real time clock and means to detect tampering with the body worn transmitter; and

the body worn transmitter additionally containing an electrolyte immersion sensor which sends a tamper inhibit signal to a tamper detection circuit in the body worn transmitter.

10. The tamper detection device in a body worn transmitter according to claim 9 wherein the body worn transmitter antenna has a conductive corrosion resistant metal foil core and a resistive coating to prevent direct electrical contact with the subject's body.

11. The tamper detection device in a body worn transmitter according to claim 9 wherein the means for electrically coupling the antenna to the transmitter is a strap clamp.

12. The tamper detection device in a body worn transmitter according to claim 9 wherein the means to detect tampering with the transmitter are an antenna reflected power sensor and level detector, an antenna voltage standing wave ratio sensor and charge detector and a transmitter cover pressure sensitive switch.

13. The tamper detection device on a body worn transmitter according to claim 9 wherein the body worn transmitter has a housing with a base proximal to the subject, the base containing a false strap tamper detection sensor.

14. A tamper detection device in a body worn transmitter according to claim 9 wherein the real time clock provides a

remote means to reset the tamper detection latch.

15. A tamper detection system for a body worn transmitter strapped to a subject's body appendage comprising:

a portable monitoring receiver in proximity to the body worn transmitter continuously receiving signals from the body worn transmitter and a global positioning satellite; and

the body worn transmitter having an antenna imbedded in a strap for communicating with the portable monitoring receiver, the antenna inductively coupled to the body of the subject and a strap clamp electrically coupling the antenna to the transmitter;

the body worn transmitter having programmed therein a coded identification signal, a data encryption for the coded identification signal, a real time clock emitting a real-time clock data signal and an antenna reflected power sensor and level detector, an antenna voltage standing wave ratio sensor and charge detector and a transmitter cover pressure sensitive switch to detect tampering with the body worn transmitter.

16. The tamper detection system according to claim 15 wherein the body worn transmitter additionally contains an electrolytic immersion sensor sending a tamper inhibit signal to a tamper detection circuit in the body worn transmitter.

17. The tamper detection system according to claim 16 wherein the antenna has a conductive corrosion resistant metal foil core

and a resistive coating to prevent direct electrical contact with the subject's appendage.

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